

**METHOD AND SYSTEM FOR BALANCING A ROTATING
MACHINERY OPERATING AT RESONANCE**

ABSTRACT OF THE DISCLOSURE

A method and system for balancing a rotating machinery operating at or near resonance , wherein the rotating machinery has an inner frame, an outer casing, and counterweights connected with a shaft of the rotating machinery, comprising: mounting a proximity probe on the outer casing; mounting a first plurality of velocity transducers on the inner frame; mounting a second plurality of velocity transducers on the outer casing; connecting the proximity probe, the first and second plurality of velocity transducers to a data acquisition system; collecting vibration data provided by the proximity probe, and the first and second plurality of velocity transducers, using the data acquisition system; removing the outer casing to allow access to the counterweights; and adjusting the counterweights using a predetermined rotor influence coefficient to reduce the vibration below an acceptable threshold level.

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